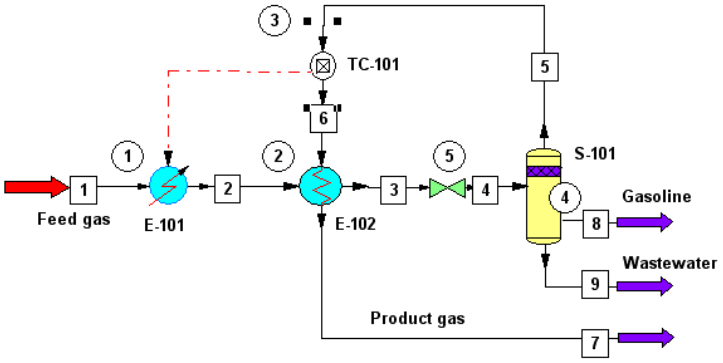
Natural Gas Expansion with Temperature Control



DESCRIPTION:

The flowsheet has been based on actual plant data. Natural gas at 100+ bar G and 283 K is heated in the E-101 exchanger, and then itself heats the product gas in exchanger E-102 to satisfy market requirements. The wet gas is then expanded with a valve, where the gas temperature decreases according to the Joule-Thompson effect. Gasoline and water condensate is knocked out in a flash drum, and further it is decanted. Cool product gas is re-heated in the E-102.

Temperature control is provided to prevent cooling the expanded gas below temperatures limited by material specifications. As gas composition and pressure at the wellhead changes in time, the automated flowsheet like this may serve for everyday field calculations and check-out. The behavior of the process can be also determined via Sensitivity Analysis.

CHEMCAD 5 can also help the gas engineer in predicting hydrate formation. Given stream composition, temperature and pressure, CHEMCAD 5 can tell whether a hydrate would form or not. It is possible to study the influence of inhibitor (methanol, EG, DEG, or TEG) on hydrate formation. Using Dynamics (CC-ReACS or CC-DCOLM module) you can study the behavior of the Control System when well capacity varies.